OIPE JC160
MAR 2 4 2004
PATENT & TRADEMARK OFFICE



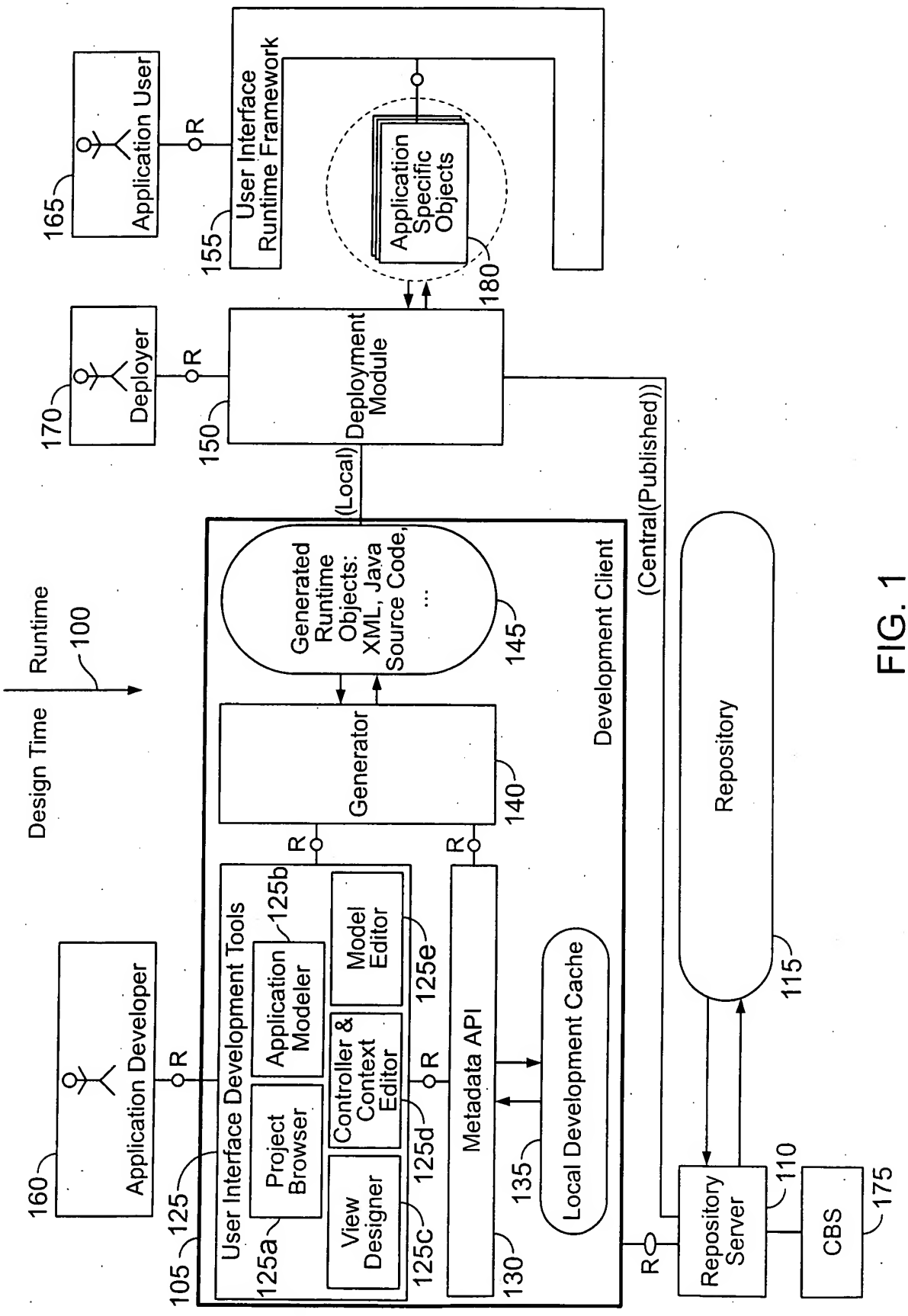


FIG. 1

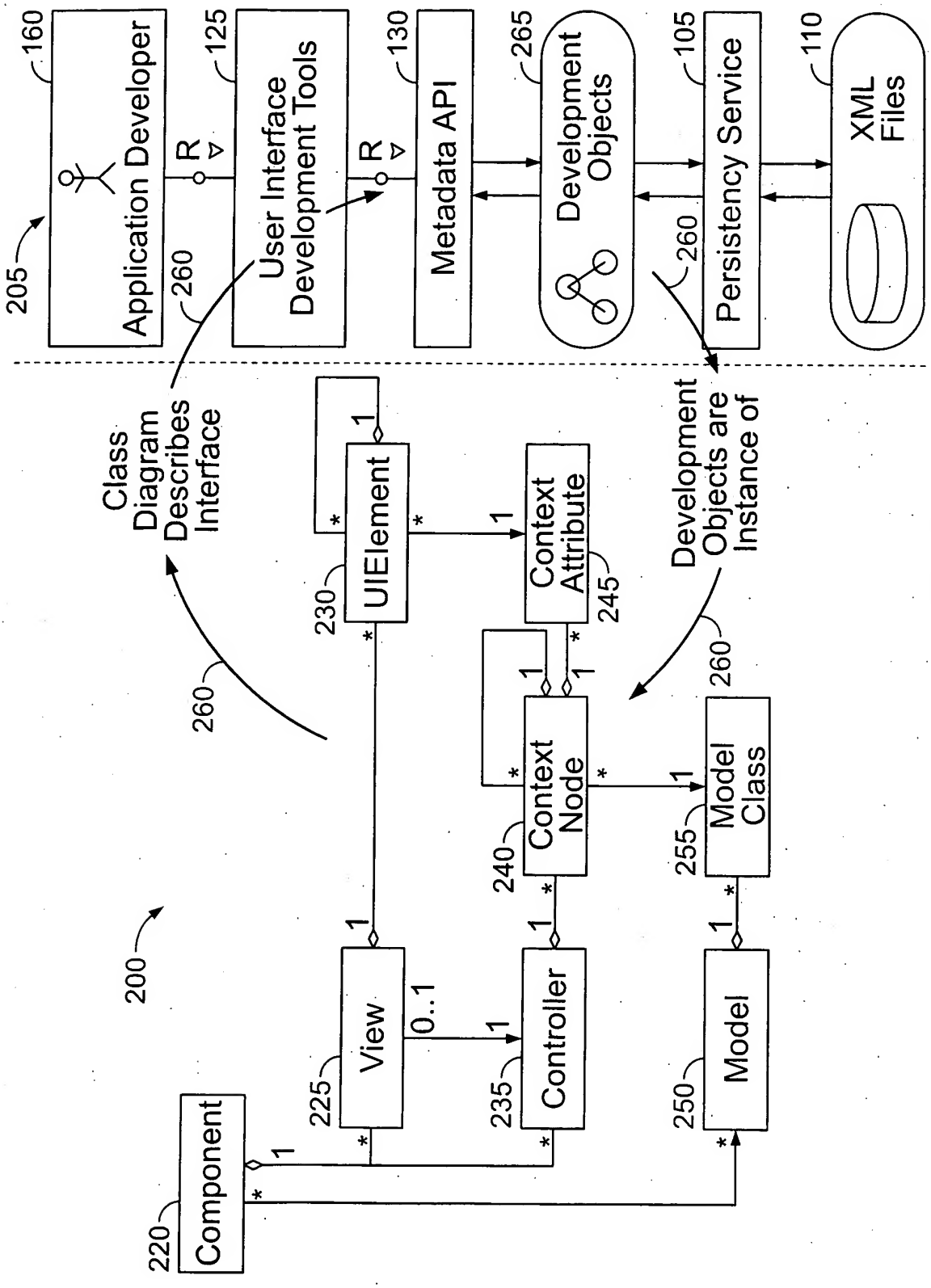
160
Application Developer
205
125
User Interface Development Tools
130
Metadata API
265
Development Objects
105
Persistency Service
110
XML Files
260
R
Class Diagram Describes Interface
Development Objects are Instance of
UIElement
230
Context Attribute
245
Context Node
240
Model Class
255
View
225
Controller
235
Model
250
Component
220
200
0..1
1
*

FIG. 2

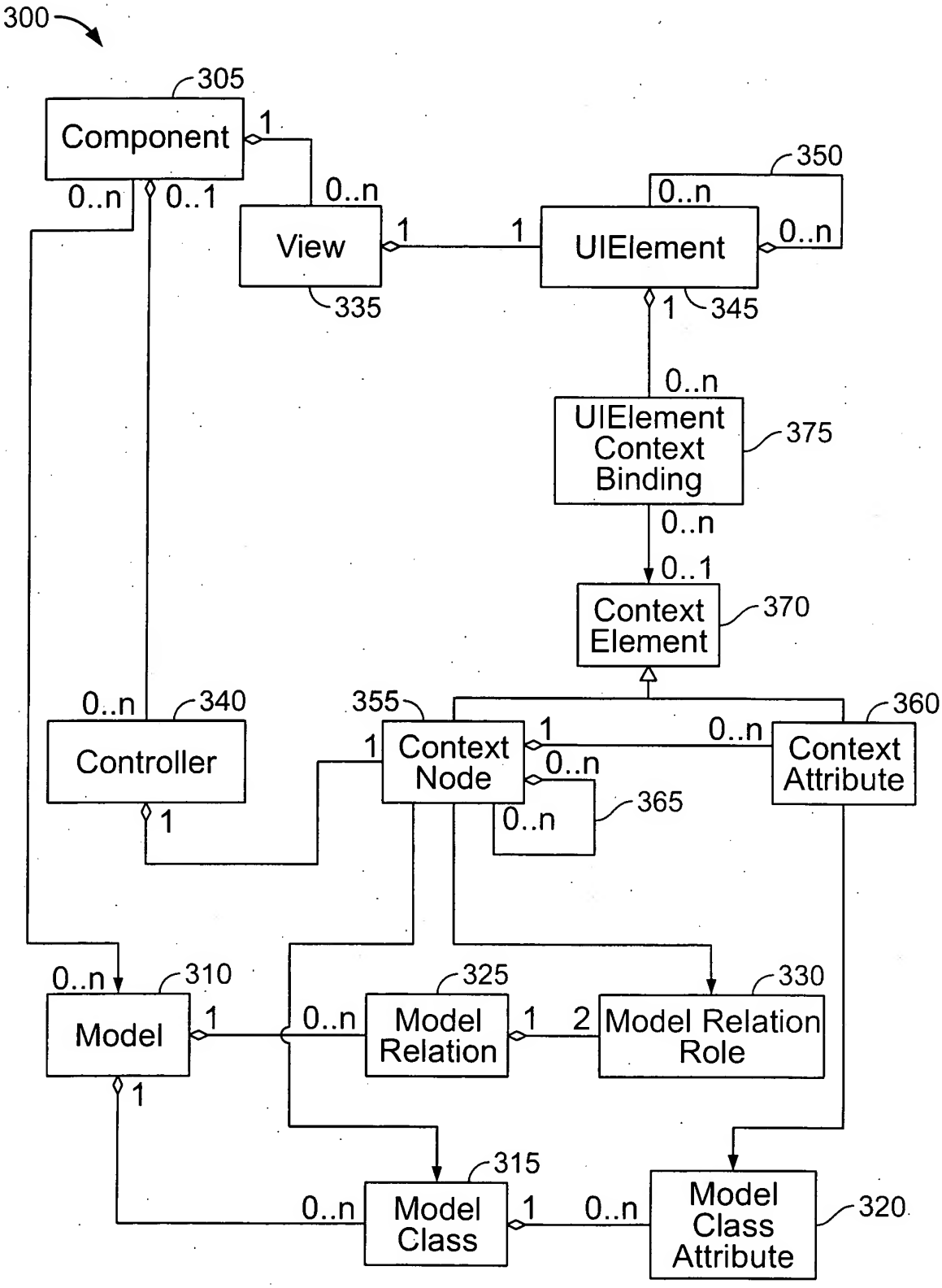
300
305
Component
1
0..n
0..1
0..n
View
1
1
UIElement
350
0..n
0..n
335
1
345
0..n
UIElement Context Binding
375
0..n
0..1
Context Element
370
0..n
340
Controller
1
355
Context Node
1
0..n
0..n
365
1
0..n
Context Attribute
360
0..n
310
Model
1
0..n
325
Model Relation
1
2
Model Relation Role
330
1
315
0..n
Model Class
1
0..n
Model Class Attribute
320

FIG. 3

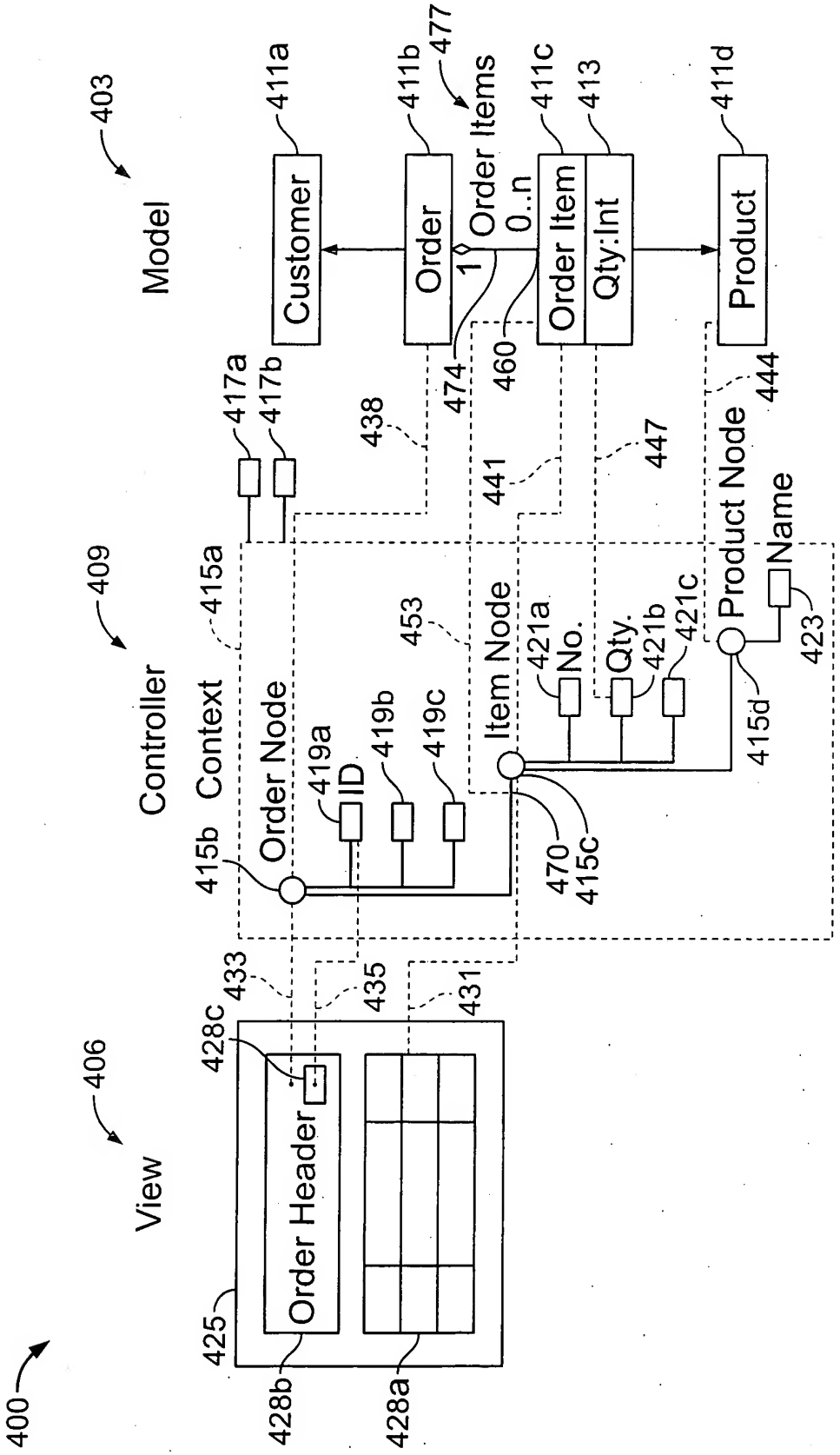
400
403
Model
Customer
411a
Order
411b
477
Order Items
1
0..n
Order Item
411c
Qty:Int
413
Product
411d
409
Controller
Context
415a
Order Node
415b
ID
419a
419b
419c
Item Node
453
No.
421a
Qty.
421b
421c
Product Node
Name
423
415d
470
415c
417a
417b
438
474
460
441
447
444
406
View
433
435
431
428c
Order Header
425
428b
428a

FIG. 4

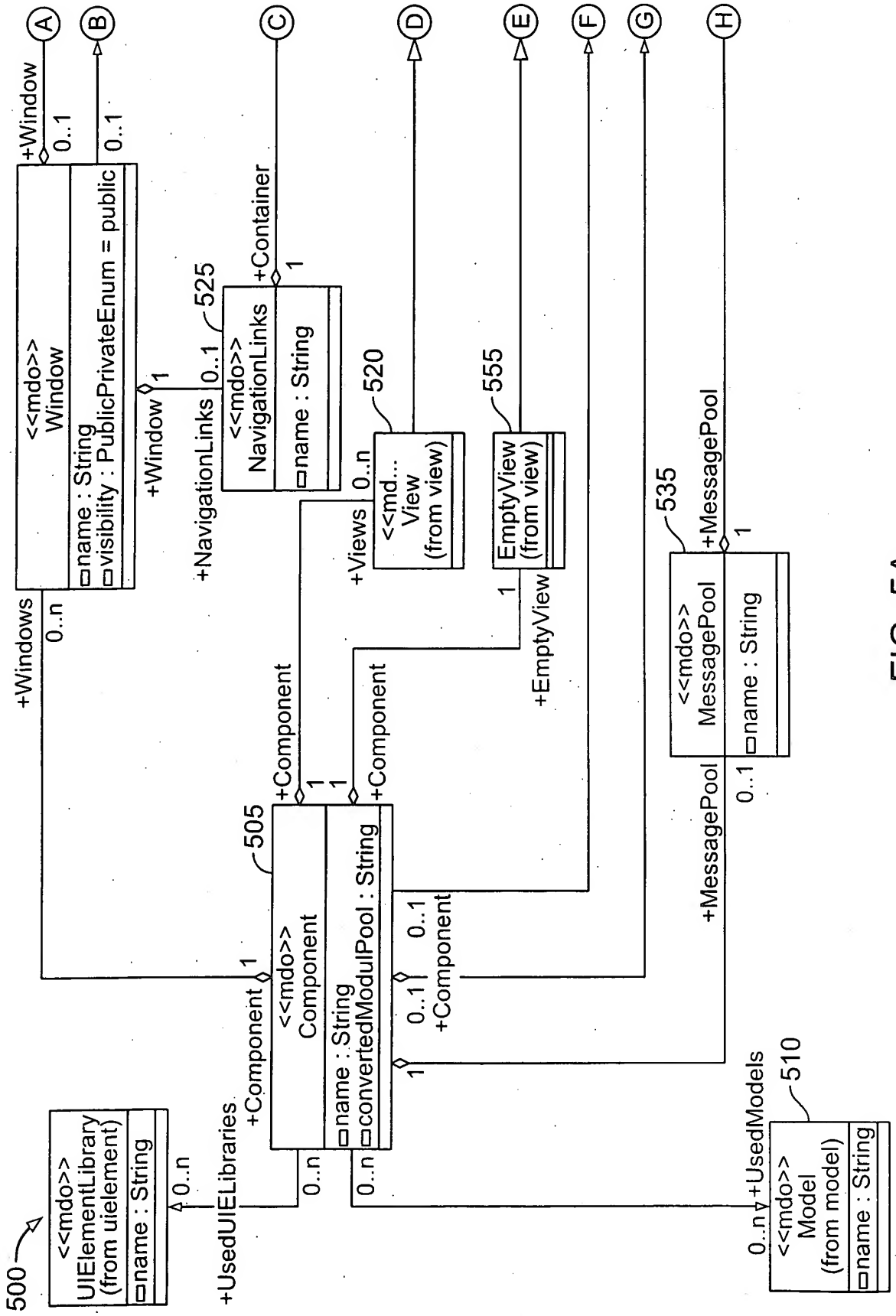
A
B
C
D
E
F
G
H
+Window
0..1
0..1
<<mdo>>
Window
name : String
visibility : PublicPrivateEnum = public
+Window
1
+Windows
0..n
525
0..1
+NavigationLinks
<<mdo>>
NavigationLinks
name : String
+Container
1
+NavigationLinks
520
0..n
+Views
<<md...
View
(from view)
555
EmptyView
(from view)
1
+EmptyView
535
+MessagePool
1
<<mdo>>
MessagePool
name : String
0..1
+MessagePool
505
+Component
1
1
+Component
<<mdo>>
Component
name : String
convertedModulPool : String
1
+Component
0..1
0..1
+Component
500
<<mdo>>
UIElementLibrary
(from uielement)
name : String
0..n
+UsedUIELibraries
0..n
0..n
0..n
+UsedModels
510
<<mdo>>
Model
(from model)
name : String

FIG. 5A

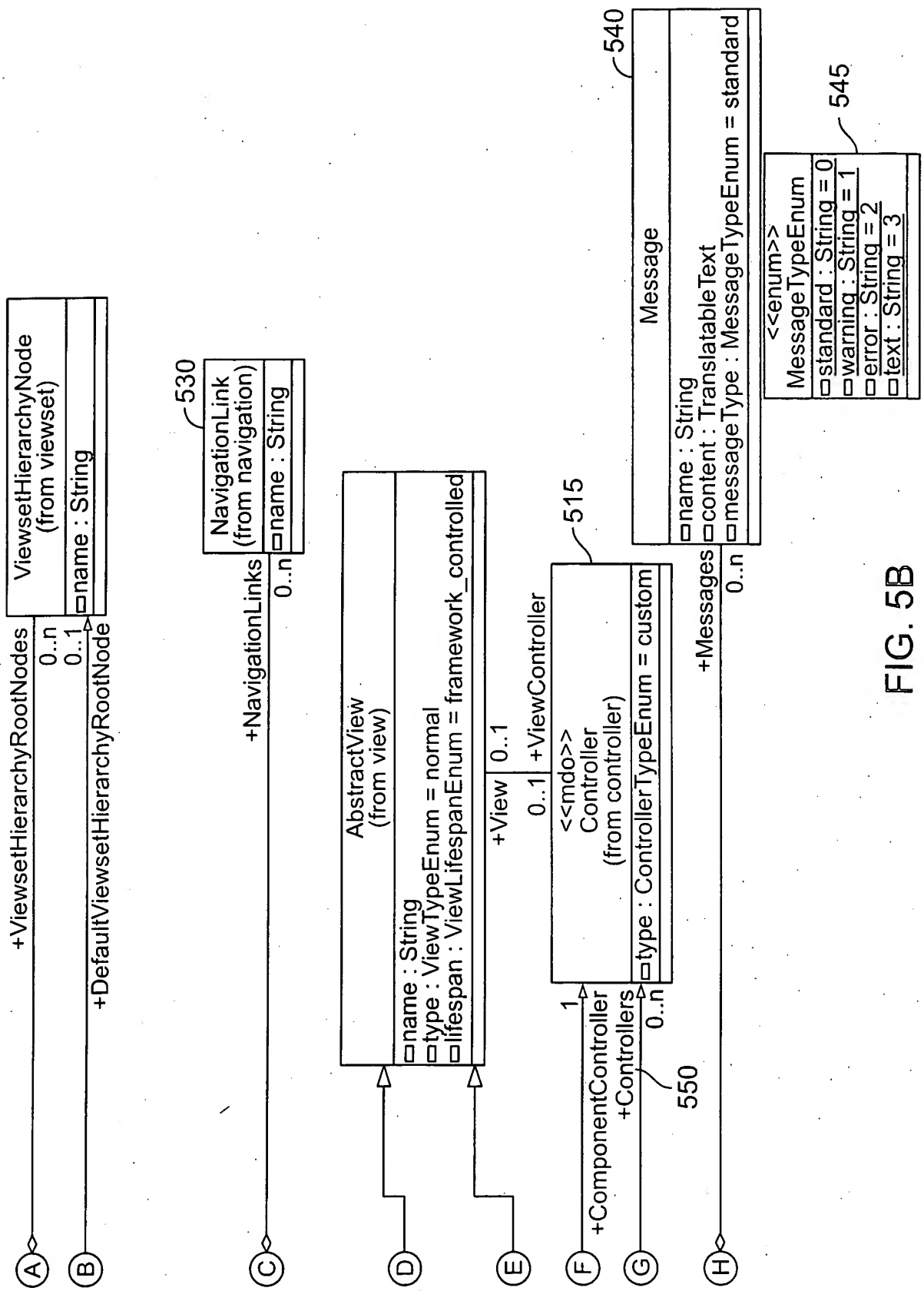
ViewsetHierarchyNode
(from viewset)
name : String
+ViewsetHierarchyRootNodes
0..n
0..1
+DefaultViewsetHierarchyRootNode
530
NavigationLink
(from navigation)
name : String
+NavigationLinks
0..n
AbstractView
(from view)
name : String
type : ViewTypeEnum = normal
lifespan : ViewLifespanEnum = framework_controlled
+View
0..1
+ViewController
0..1
515
<<mdo>>
Controller
(from controller)
type : ControllerTypeEnum = custom
1
+ComponentController
+Controllers
0..n
550
540
Message
name : String
content : TranslatableText
messageType : MessageTypeEnum = standard
+Messages
0..n
<<enum>>
MessageTypeEnum
standard : String = 0
warning : String = 1
error : String = 2
text : String = 3
545
A
B
C
D
E
F
G
H

FIG. 5B

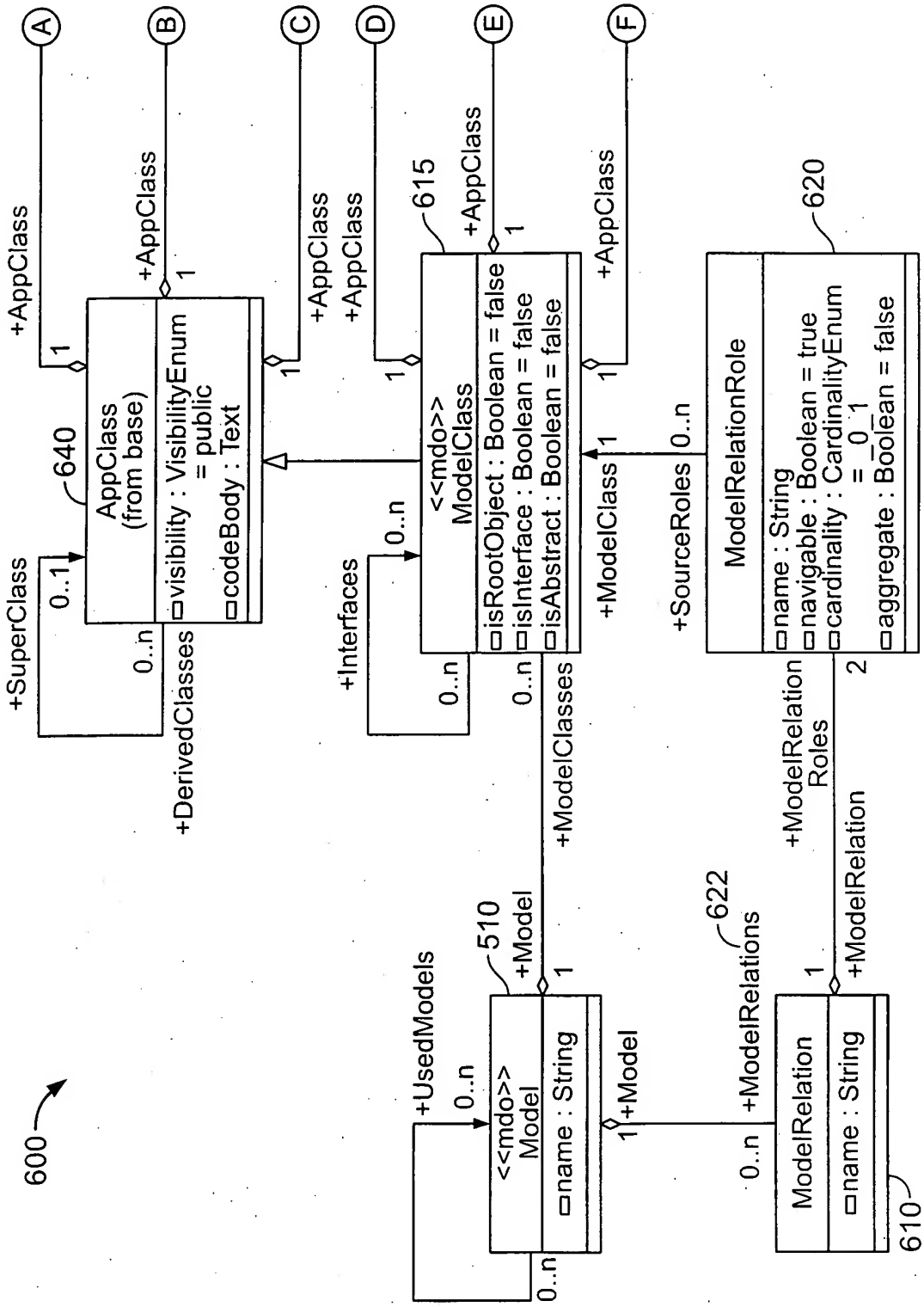
600
A
B
C
D
E
F
640
AppClass
(from base)
visibility : VisibilityEnum
= public
codeBody : Text
615
<<mdo>>
ModelClass
isRootObject : Boolean = false
isInterface : Boolean = false
isAbstract : Boolean = false
620
ModelRelationRole
name : String
navigable : Boolean = true
cardinality : CardinalityEnum
= 0_1
aggregate : Boolean = false
510
<<mdo>>
Model
name : String
622
ModelRelation
name : String
610
+AppClass
+SuperClass
+DerivedClasses
+Interfaces
+ModelClass
+SourceRoles
+UsedModels
+Model
+ModelClasses
+ModelRelations
+ModelRelation
+ModelRelation
Roles
0..1
0..n
1

FIG. 6A

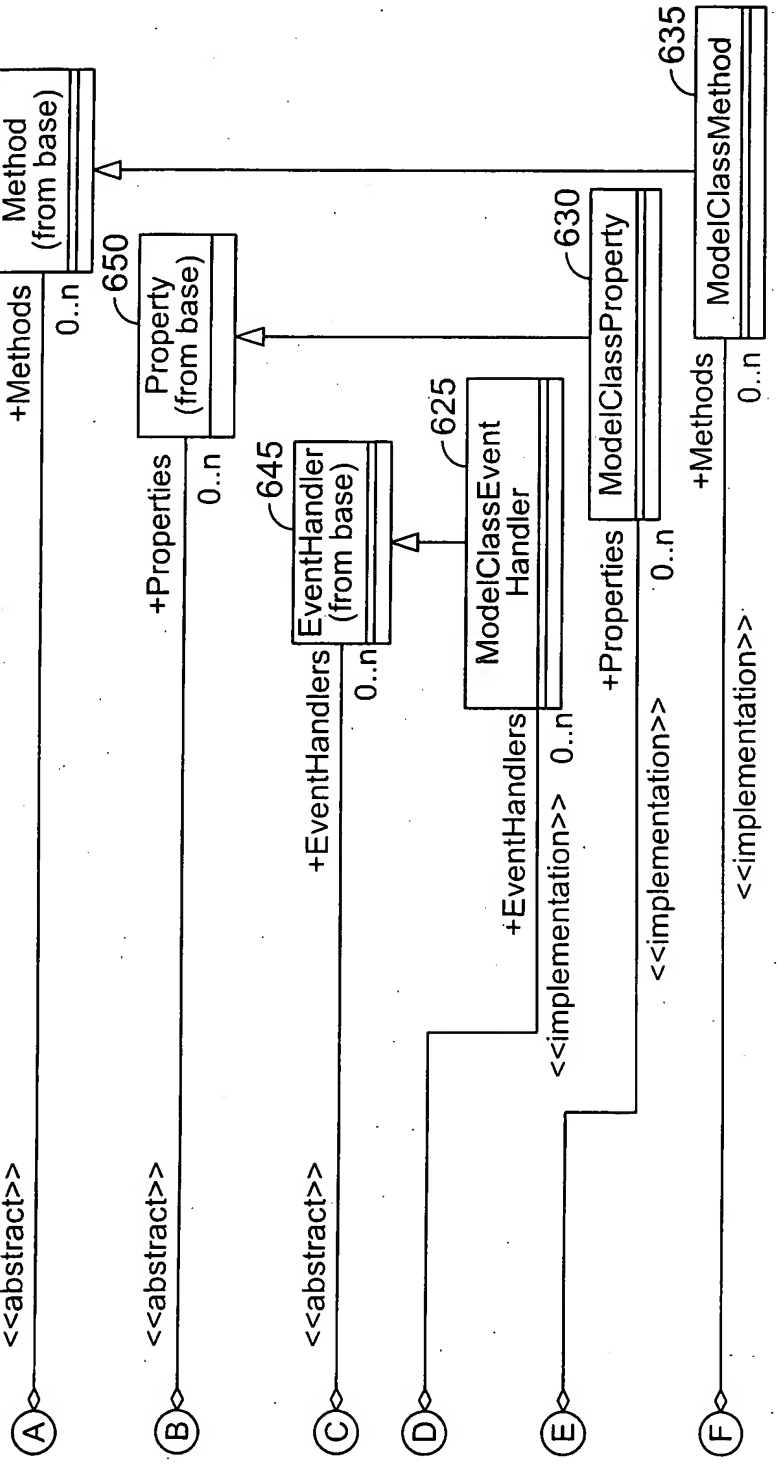
655
Method (from base)
650
Property (from base)
645
EventHandler (from base)
625
ModelClassEvent Handler
630
ModelClassProperty
635
ModelClassMethod
+Methods
0..n
+Properties
0..n
+EventHandlers
0..n
+EventHandlers
0..n
+Properties
0..n
+Methods
0..n
<<implementation>>
<<implementation>>
<<implementation>>
<<abstract>>
<<abstract>>
<<abstract>>
A
B
C
D
E
F

FIG. 6B

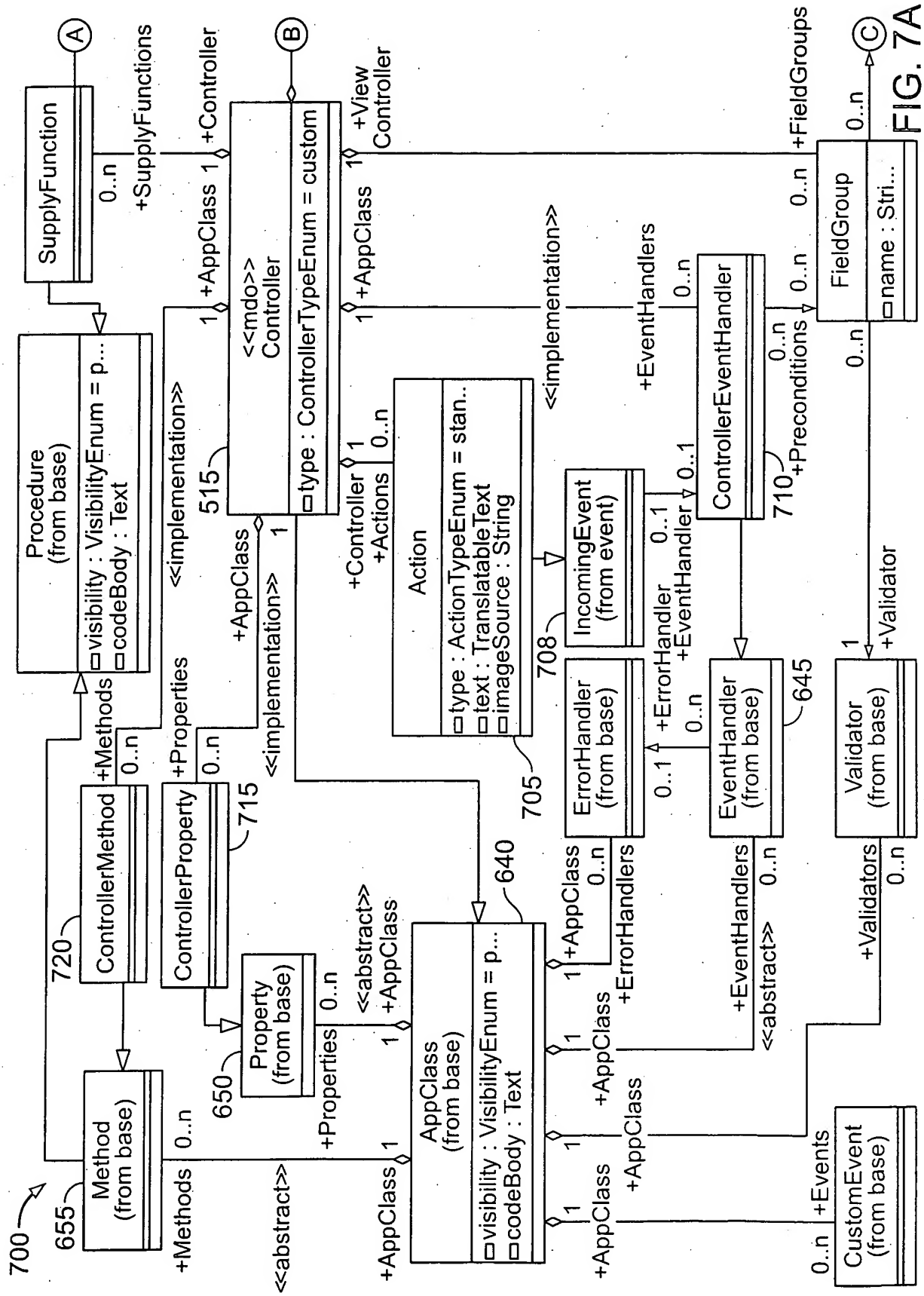
A
B
C
SupplyFunction
0..n
+SupplyFunctions
+Controller
1
+AppClass
1
+View Controller
+FieldGroups
0..n
Procedure (from base)
visibility : VisibilityEnum = p...
codeBody : Text
<<implementation>>
<<mdo>> Controller
type : ControllerTypeEnum = custom
515
+AppClass
1
+Controller
1
+Actions
0..n
Action
type : ActionTypeEnum = stan..
text : TranslatableText
imageSource : String
<<implementation>>
+EventHandlers
0..n
FieldGroup
name : Stri...
+Methods
0..n
+Properties
0..n
715
ControllerProperty
720
ControllerMethod
705
708
IncomingEvent (from event)
ControllerEventHandler
710
+Preconditions
0..n
0..1
+ErrorHandler
0..1
+EventHandler
0..1
ErrorHandler (from base)
EventHandler (from base)
645
Validator (from base)
+Validator
1
0..n
+Validators
0..n
650
Property (from base)
0..n
+Properties
<<abstract>>
+AppClass
1
640
AppClass (from base)
visibility : VisibilityEnum = p...
codeBody : Text
+AppClass
0..n
+ErrorHandlers
+EventHandlers
0..n
<<abstract>>
700
655
Method (from base)
+Methods
0..n
<<abstract>>
+AppClass
1
+AppClass
1
+AppClass
1
+AppClass
1
+Events
0..n
CustomEvent (from base)

FIG. 7A

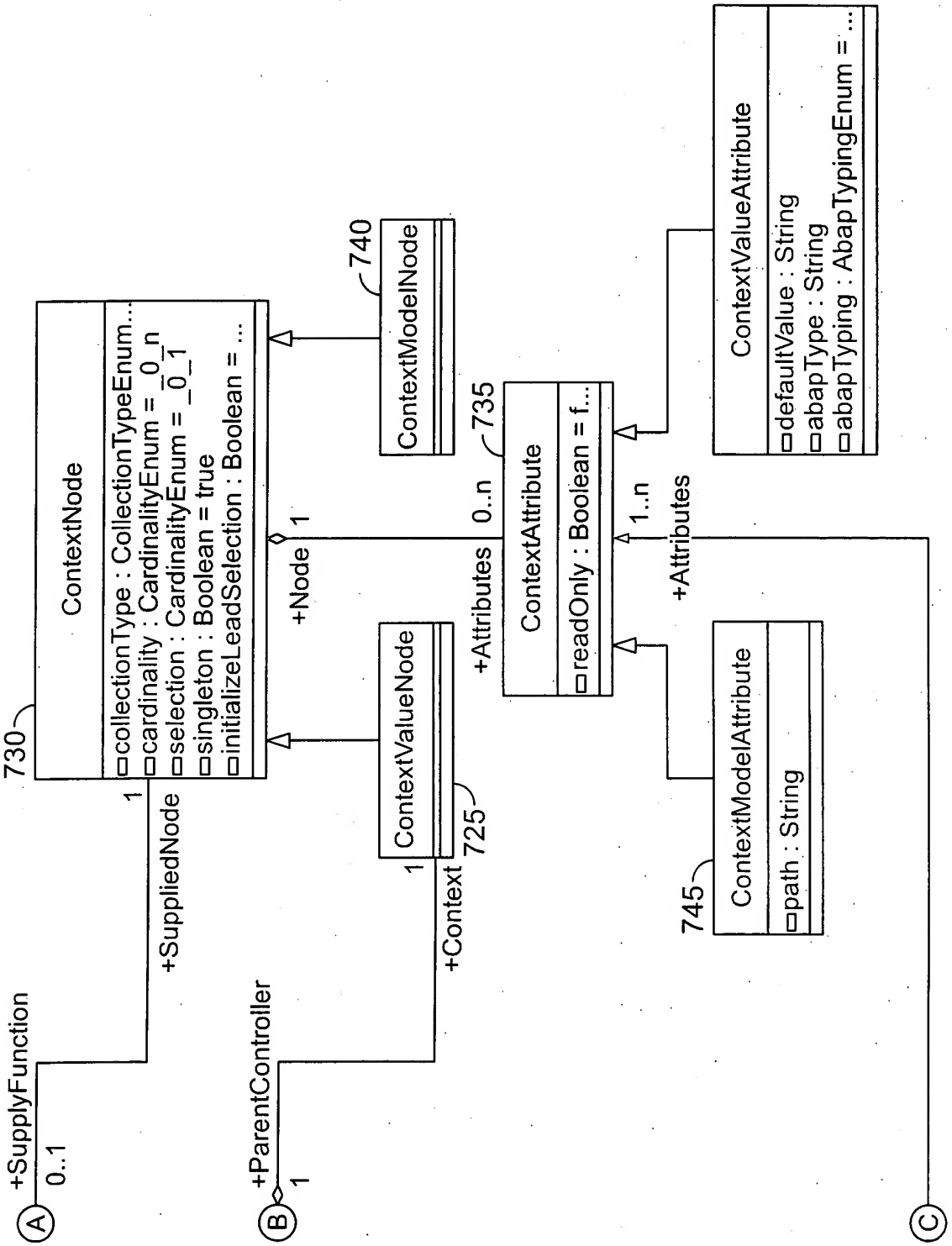
ContextNode
collectionType : CollectionTypeEnum...
cardinality : CardinalityEnum = _0_n
selection : CardinalityEnum = _0_1
singleton : Boolean = true
initializeLeadSelection : Boolean = ...
730
ContextModelNode
740
ContextValueNode
725
ContextAttribute
readOnly : Boolean = f...
735
ContextValueAttribute
defaultValue : String
abapType : String
abapTyping : AbapTypingEnum = ...
ContextModelAttribute
path : String
745
+SupplyFunction
0..1
+SuppliedNode
1
+ParentController
1
+Context
1
+Node
1
+Attributes
0..n
+Attributes
1..n
A
B
C

FIG. 7B

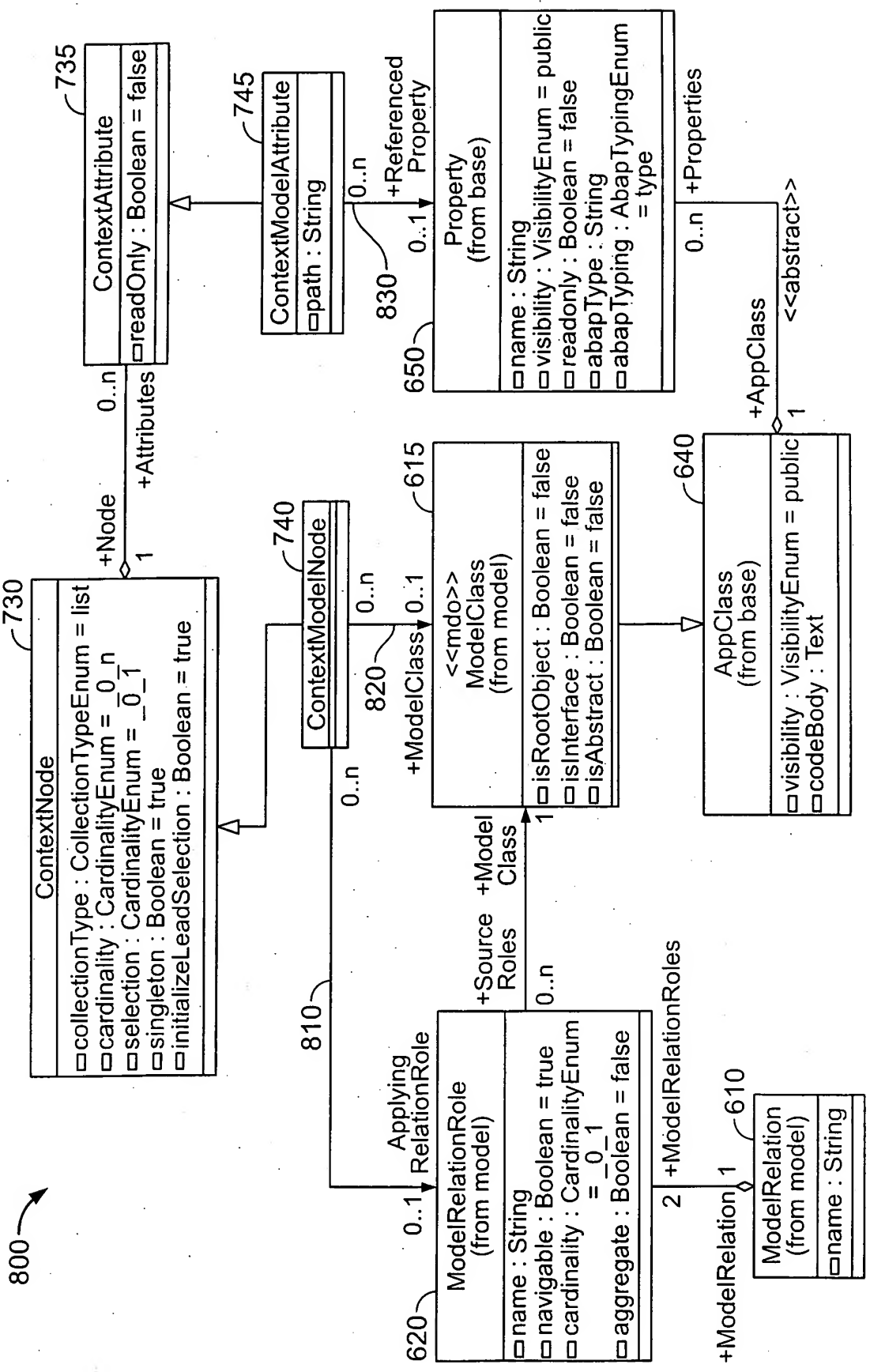
800
730
ContextNode
collectionType : CollectionTypeEnum = list
cardinality : CardinalityEnum = _0_n
selection : CardinalityEnum = _0_1
singleton : Boolean = true
initializeLeadSelection : Boolean = true
+Node
1
+Attributes
0..n
735
ContextAttribute
readOnly : Boolean = false
745
ContextModelAttribute
path : String
0..n
+Referenced Property
0..1
830
650
Property (from base)
name : String
visibility : VisibilityEnum = public
readonly : Boolean = false
abapType : String
abapTyping : AbapTypingEnum = type
0..n
+Properties
740
ContextModelNode
0..n
820
+ModelClass
0..1
615
<<mdo>>
ModelClass
(from model)
isRootObject : Boolean = false
isInterface : Boolean = false
isAbstract : Boolean = false
640
AppClass
(from base)
visibility : VisibilityEnum = public
codeBody : Text
+AppClass
1
<<abstract>>
810
0..1
Applying RelationRole
+Source Roles
0..n
+Model Class
1
620
ModelRelationRole
(from model)
name : String
navigable : Boolean = true
cardinality : CardinalityEnum = _0_1
aggregate : Boolean = false
2
+ModelRelationRoles
+ModelRelation
1
610
ModelRelation
(from model)
name : String

FIG. 8

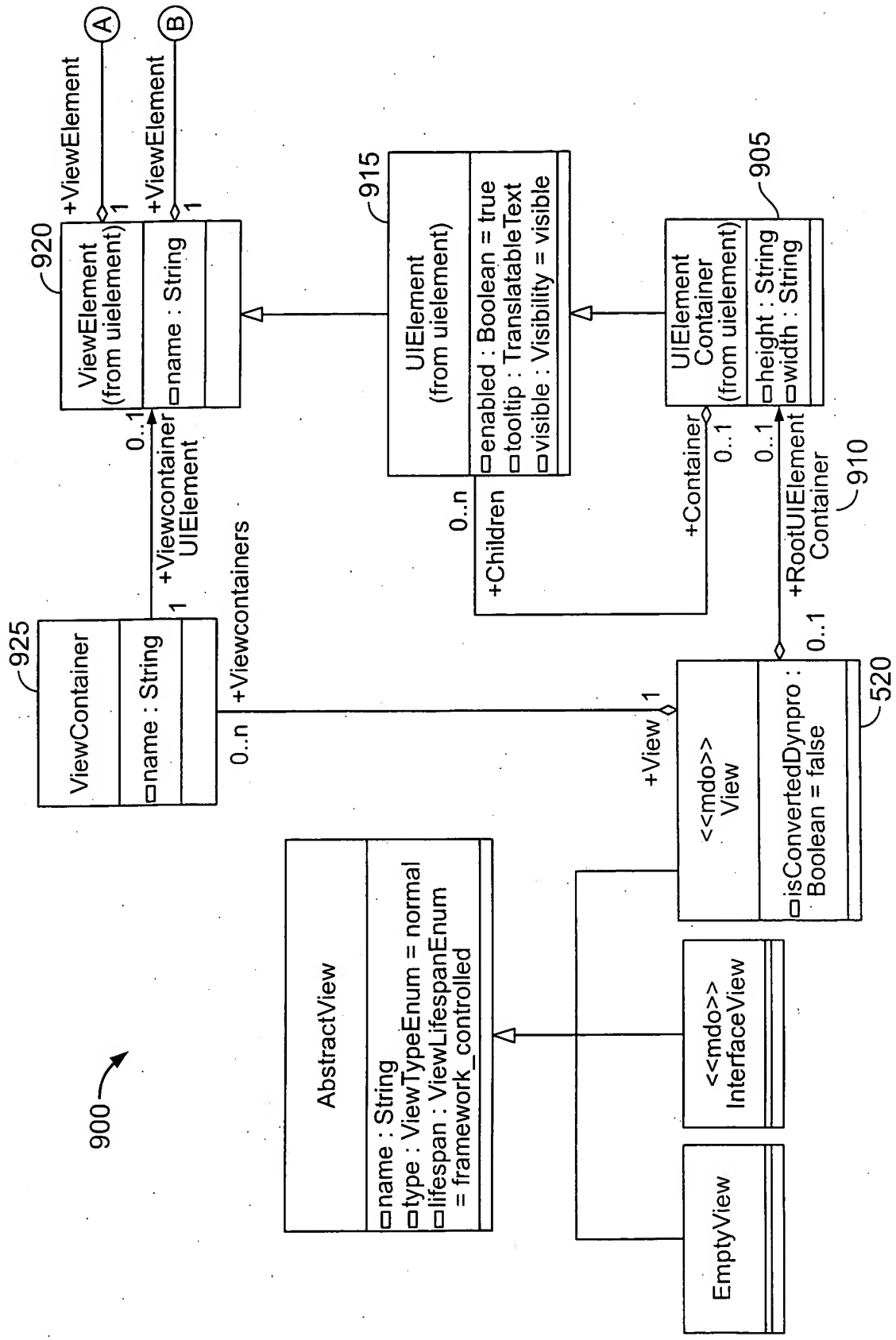
900
AbstractView
name : String
type : ViewTypeEnum = normal
lifespan : ViewLifespanEnum = framework_controlled
EmptyView
<<mdo>>
InterfaceView
<<mdo>>
View
isConvertedDynpro : Boolean = false
520
910
+RootUIElement Container
0..1
0..1
+View
1
+Container
0..1
0..1
+Children
0..n
915
UIElement (from uielement)
enabled : Boolean = true
tooltip : TranslatableText
visible : Visibility = visible
905
UIElement Container (from uielement)
height : String
width : String
925
ViewContainer
name : String
+Viewcontainers
0..n
+Viewcontainer UIElement
1
0..1
920
ViewElement (from uielement)
name : String
+ViewElement
1
+ViewElement
1
A
B

FIG. 9A

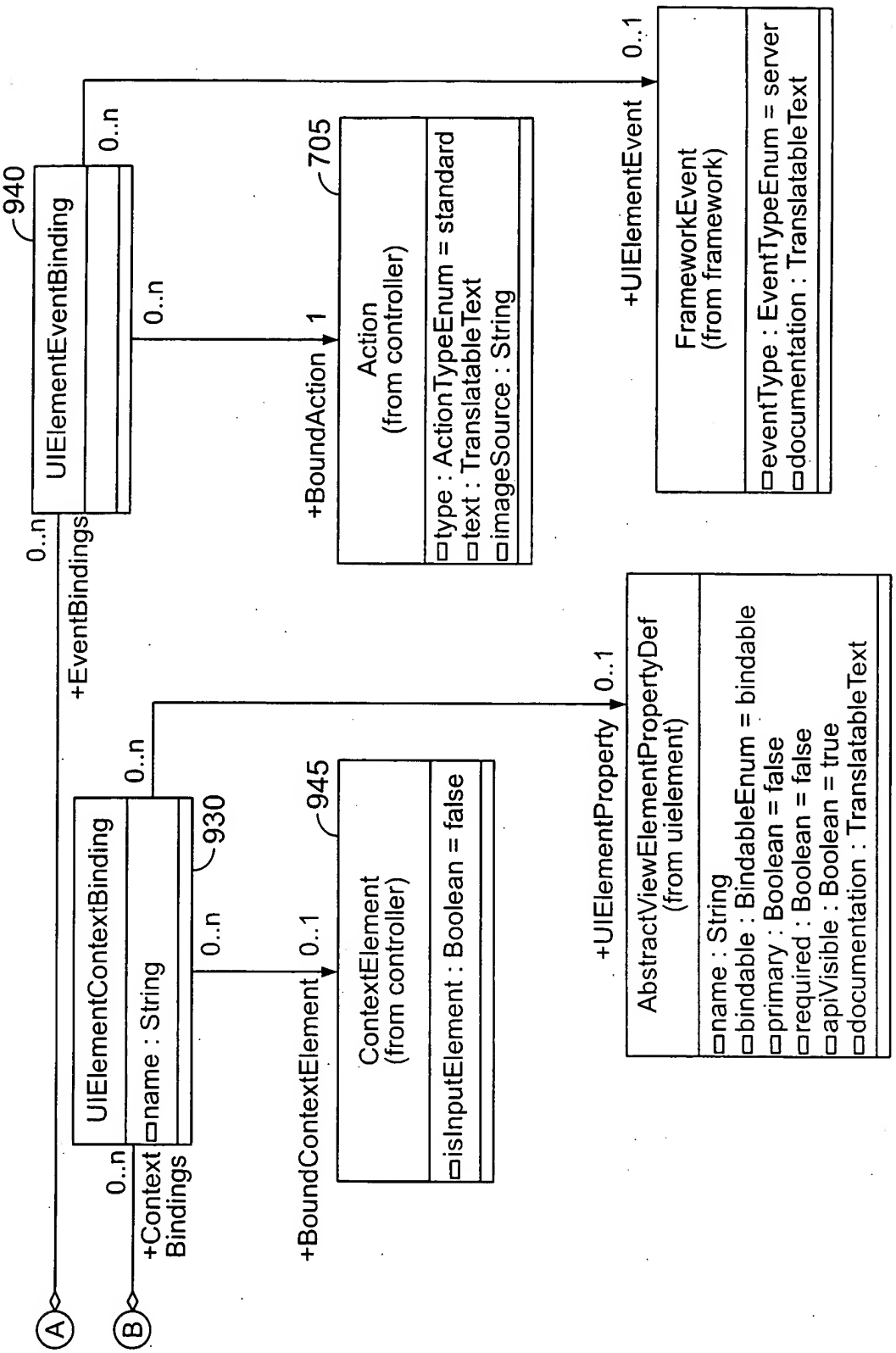
940
UIElementEventBinding
0..n
0..n
+EventBindings
0..n
+BoundAction
1
705
Action
(from controller)
type : ActionTypeEnum = standard
text : TranslatableText
imageSource : String
+UIElementEvent
0..1
FrameworkEvent
(from framework)
eventType : EventTypeEnum = server
documentation : TranslatableText
0..n
UIElementContextBinding
name : String
930
0..n
+Context Bindings
0..n
A
B
+BoundContextElement
0..1
945
ContextElement
(from controller)
isInputElement : Boolean = false
+UIElementProperty
0..1
AbstractViewElementPropertyDef
(from uielement)
name : String
bindable : BindableEnum = bindable
primary : Boolean = false
required : Boolean = false
apiVisible : Boolean = true
documentation : TranslatableText

FIG. 9B

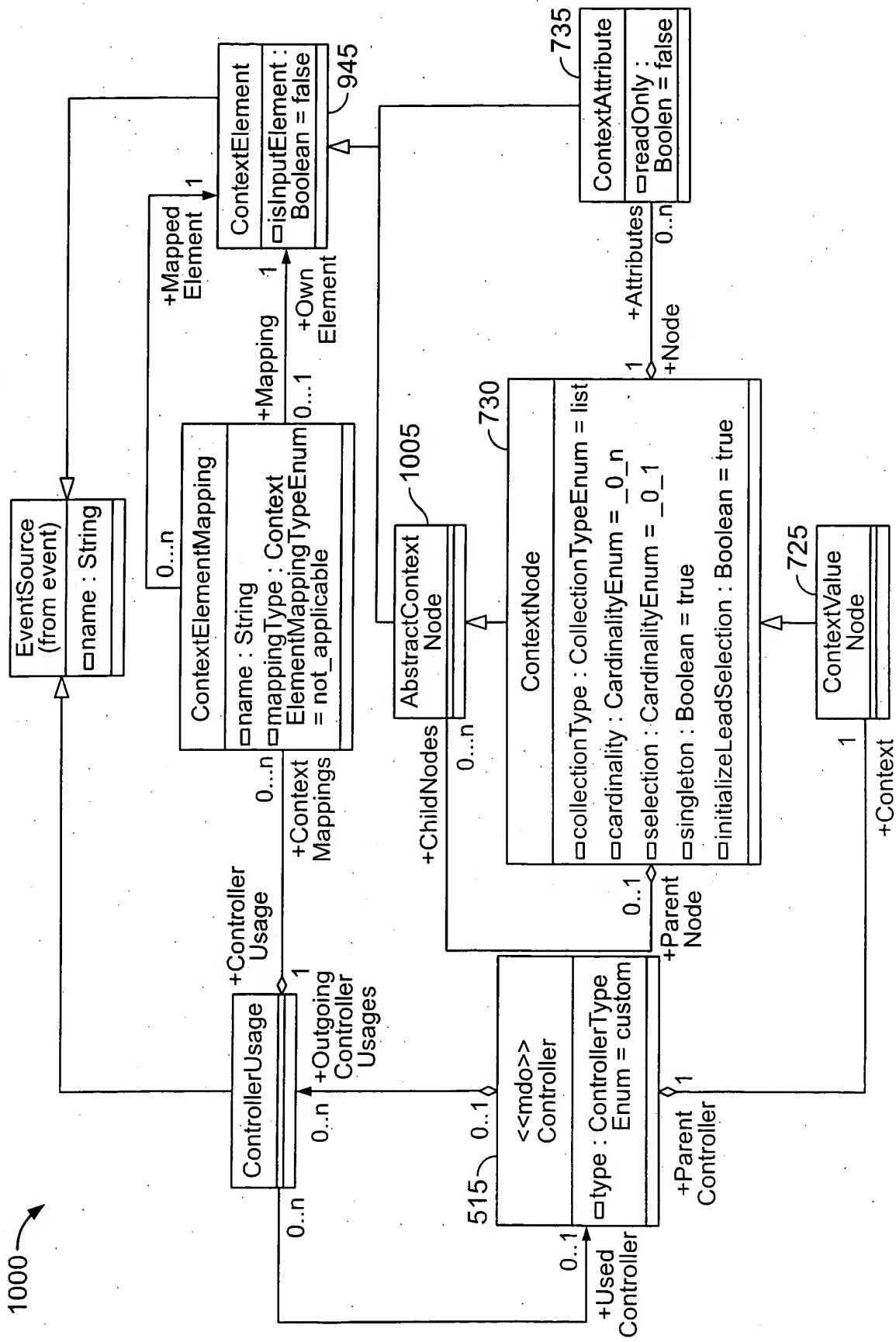
1000
EventSource (from event)
name : String
ContextElement
isInputElement : Boolean = false
945
735
ContextAttribute
readOnly : Boolean = false
+Mapped Element
1
+Own Element
+Mapping
1
0...1
0...n
+Attributes
0..n
+Node
1
ContextElementMapping
name : String
mappingType : Context ElementMappingTypeEnum = not_applicable
1005
AbstractContext Node
730
ContextNode
collectionType : CollectionTypeEnum = list
cardinality : CardinalityEnum = _0_n
selection : CardinalityEnum = _0_1
singleton : Boolean = true
initializeLeadSelection : Boolean = true
725
ContextValue Node
+Context Mappings
0...n
+ChildNodes
0...n
+Parent Node
0..1
+Context
1
+Controller Usage
1
+Outgoing Controller Usages
0..n
ControllerUsage
0..n
0..1
<<mdo>> Controller
515
type : ControllerType Enum = custom
0..1
+Parent Controller
1
+Used Controller

FIG. 10

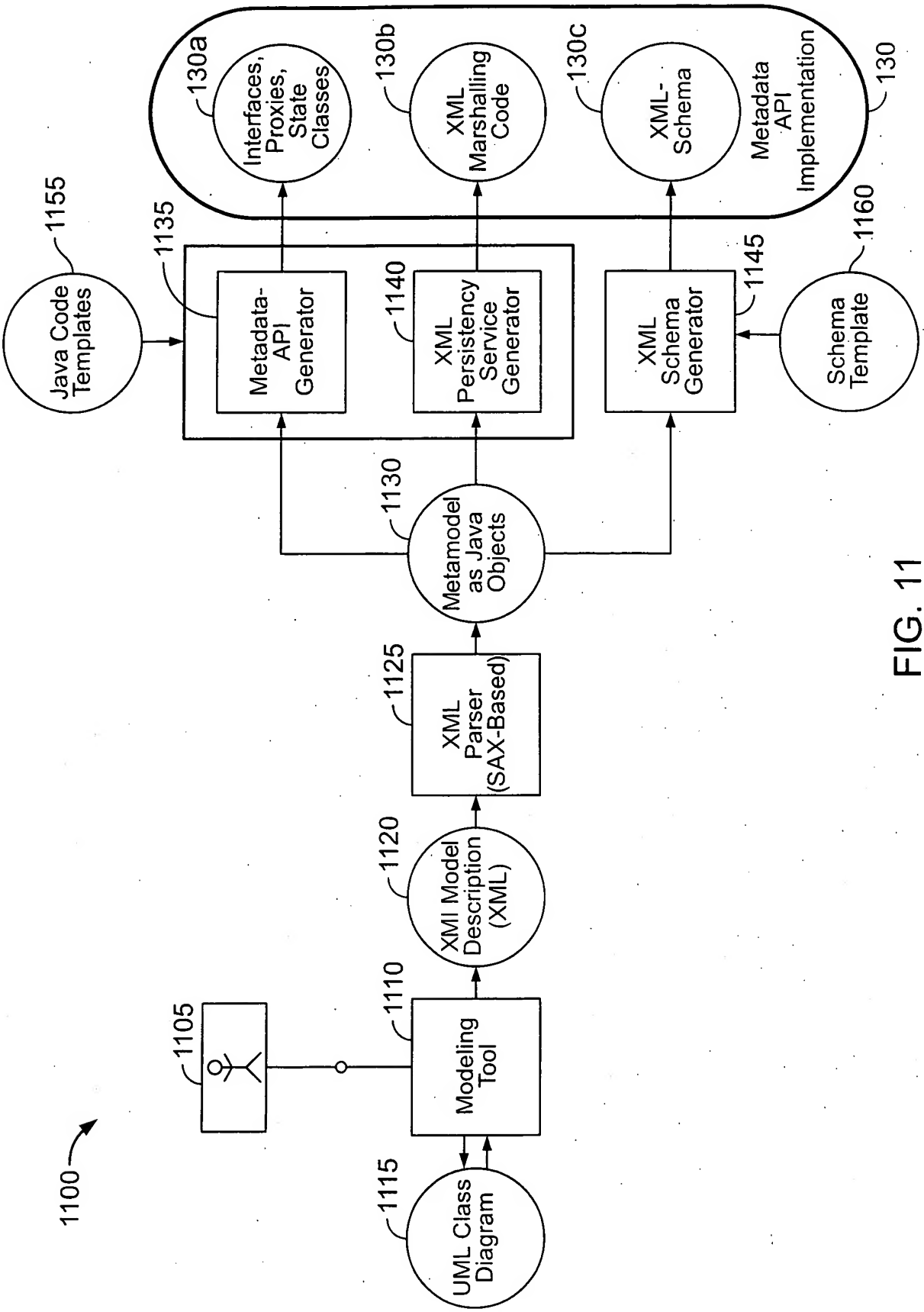
1100
UML Class Diagram
1115
Modeling Tool
1110
1105
XMI Model Description (XML)
1120
XML Parser (SAX-Based)
1125
Metamodel as Java Objects
1130
Java Code Templates
1155
Metadata-API Generator
XML Persistency Service Generator
1140
XML Schema Generator
1145
Schema Template
1160
1135
Interfaces, Proxies, State Classes
130a
XML Marshalling Code
130b
XML-Schema
130c
Metadata API Implementation
130

FIG. 11

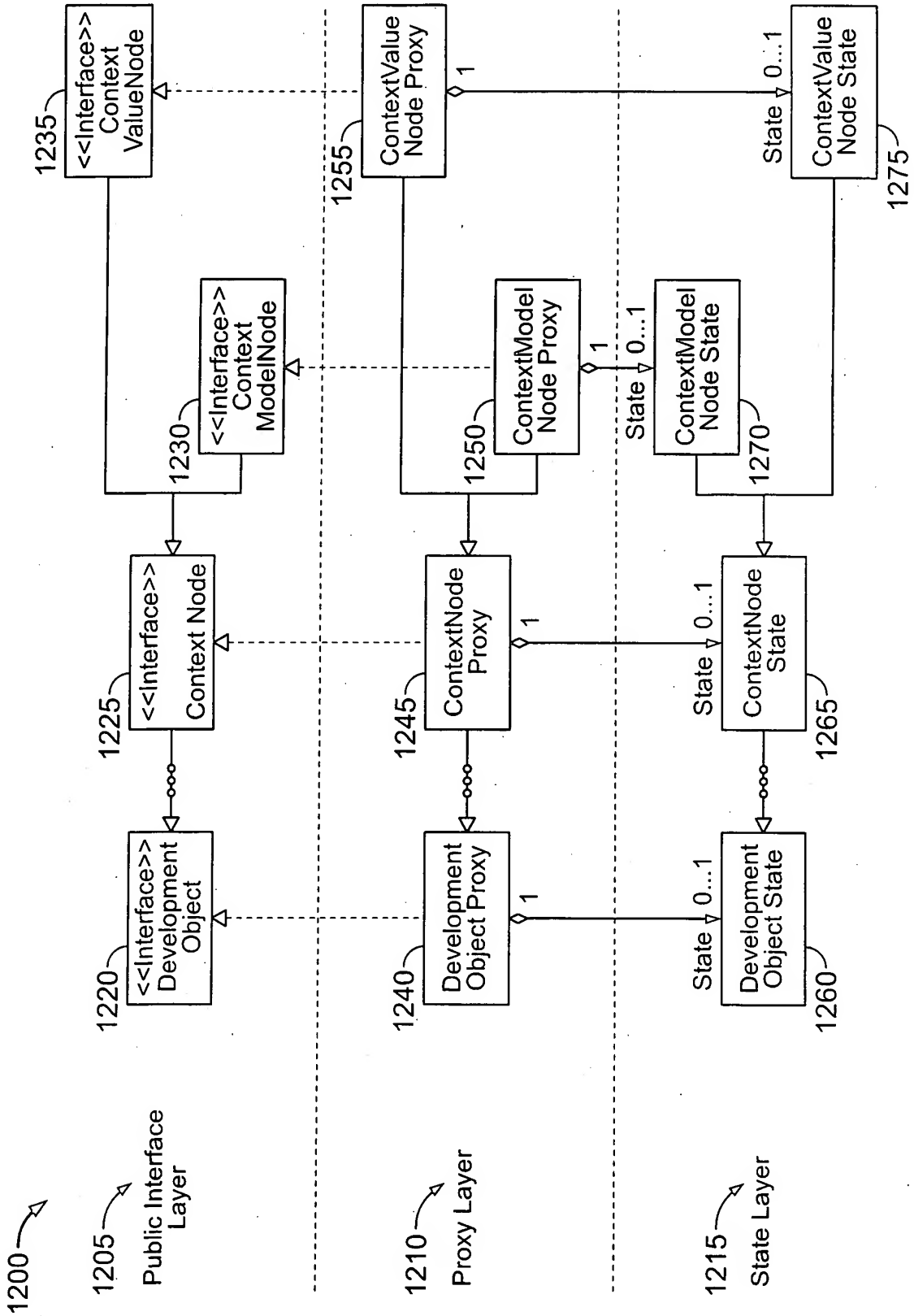
1200
1205
Public Interface Layer
1210
Proxy Layer
1215
State Layer
1220
<<Interface>> Development Object
1225
<<Interface>> Context Node
1230
<<Interface>> Context ModelNode
1235
<<Interface>> Context ValueNode
1240
Development Object Proxy
1245
ContextNode Proxy
1250
ContextModel Node Proxy
1255
ContextValue Node Proxy
1260
Development Object State
1265
ContextNode State
1270
ContextModel Node State
1275
ContextValue Node State
1
State 0...1

FIG. 12

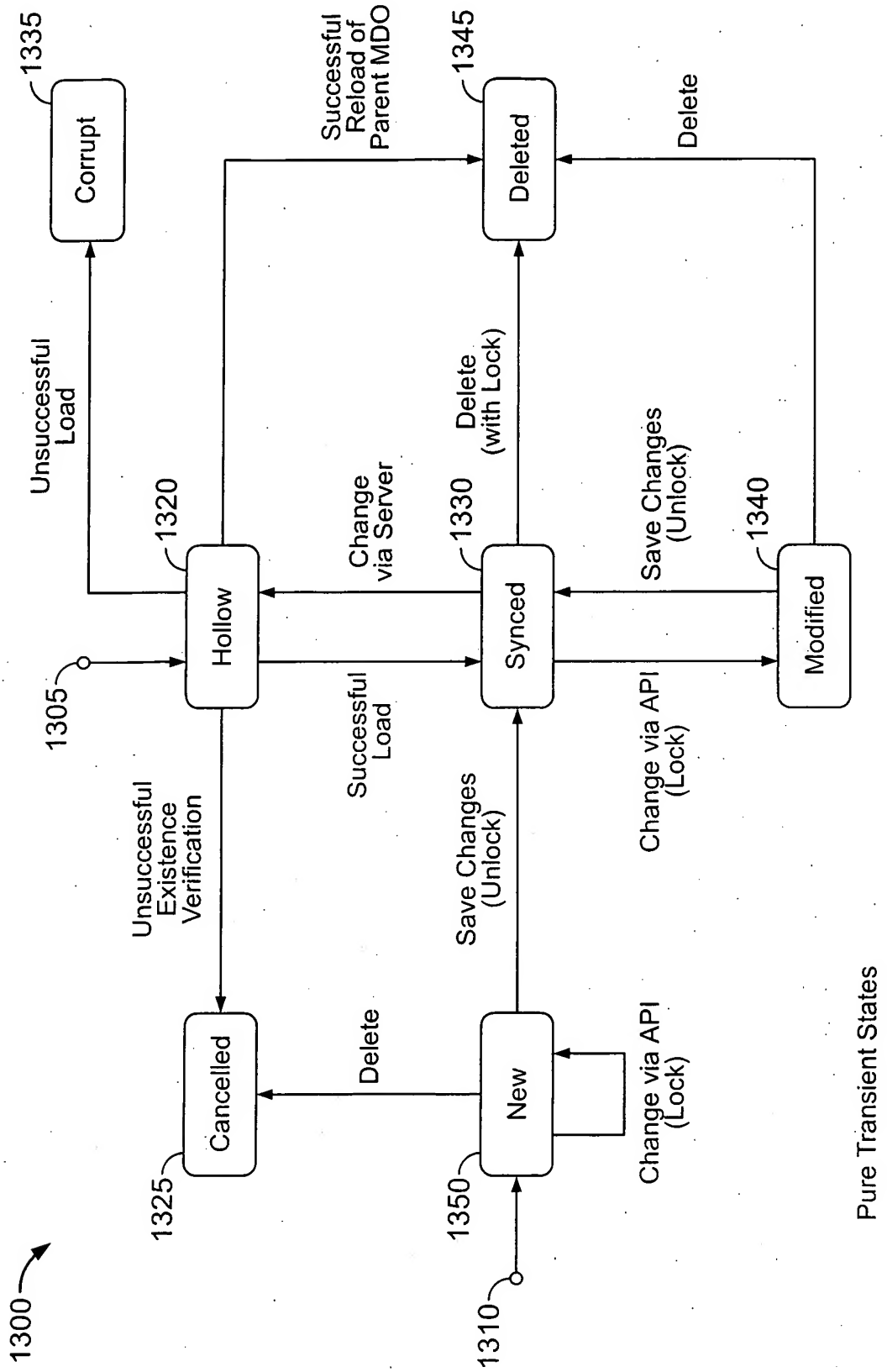
1300
1305
1310
Hollow
1320
Synced
1330
Modified
1340
Deleted
1345
Corrupt
1335
Cancelled
1325
New
1350
Unsuccessful Load
Successful Reload of Parent MDO
Delete
Change via Server
Delete (with Lock)
Save Changes (Unlock)
Unsuccessful Existence Verification
Successful Load
Save Changes (Unlock)
Change via API (Lock)
Delete
Change via API (Lock)
Pure Transient States

FIG. 13